# Walbridge
# 1501 Ardmore Blvd. Suite 301
# Pittsburgh, Pennsylvania

## Initial Exposure Air Monitoring Assessment Report
## U.S. Steel Gary Works Strategic Coke Improvement Project – Phase 1
## Gary, Indiana

**September 2010**

TTL associates inc

44265 Plymouth Oaks Blvd.
Plymouth, MI 48170-2585
T 734-455-8600
F 734-455-8608
www.ttlassoc.com

September 24, 2010

TTL Project No. 6874.01

Mr. John Hucul
Superintendent
Walbridge
1501 Ardmore Blvd., Suite 301
Pittsburgh, Pennsylvania 15221

**Initial Exposure Air Monitoring Assessment Report**
**U.S. Steel – Gary Works**
**Strategic Coke Improvement Project – Phase 1**
**Gary, Indiana**

Dear Mr. Hucul:

TTL Associates, Inc. (TTL) is pleased to submit this Initial Exposure Air Monitoring Assessment Report to Walbridge for air monitoring activities at the above-referenced site. Authorization to provide these services was granted on August 13, 2010.

TTL appreciates the continued opportunity to provide Walbridge with our engineering, consulting, and testing services. Should you have any questions or require additional information, please contact Mr. Timothy Belcher (734) 455-8600, extension 1248.

Sincerely,

**TTL Associates, Inc.**

Kristen Socie

for

Henry A. Phillips, CIH
Certified Industrial Hygienist

Timothy Belcher
Manager, Industrial Hygiene Services

cc: Mr. Mike Miskevics, Deputy General Manager, East

# INITIAL EXPOSURE AIR MONITORING ASSESSMENT REPORT
# U.S. STEEL - GARY WORKS
# STRATEGIC COKE IMPROVEMENT PROJECT – PHASE 1
# GARY, INDIANA

**FOR**

## WALBRIDGE
## 1501 ARDMORE BLVD., SUITE 301
## PITTSBURGH, PENNSYLVANIA

**SUBMITTED**

**SEPTEMBER 24, 2010**
**TTL PROJECT NO. 6874.01**

**TTL ASSOCIATES, INC.**
**44265 PLYMOUTH OAKS BLVD.**
**PLYMOUTH, MICHIGAN 48170**
**(734) 455-8600**
**(734) 455-8608 FAX**

## TABLE OF CONTENTS

# 1.0 INTRODUCTION

TTL Associates, Inc. (TTL) was retained by Walbridge to provide employee exposure air monitoring services in support of the excavation activities for the Strategic Coke Improvement Project at the U.S. Steel Gary Works facility in Gary, Indiana. The employee exposure air monitoring was performed during soil grading and excavation activities for the construction of a new coke facility at the U.S. Steel facility. TTL performed the air monitoring investigation from August 17 through August 20, 2010 and September 8 and 9, 2010.

## 1.1 Project Background

Prior to the excavation activities at the site, background soil samples were collected at various locations and varying depths (surface and deeper up to 8 feet). Analytical data of the soil sampling provided by Walbridge indicated elevated levels of manganese and iron present in the existing soils. Due to the results of the soil sampling, there was a concern regarding potential exposure to dust containing manganese and iron for employees who would be conducting the excavation and construction related activities at the site of the new coke facility.

## 1.2 Project Objective

The objective of this air monitoring project was to provide training and conduct employee exposure air monitoring for manganese and iron during excavations activities as well as ambient air monitoring upwind and downwind for total particulate during excavation activities. Results from the air monitoring would be compared to Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs). The PELs are as follows:

- The United States Occupational Safety and Health Administration (OSHA) Ceiling Exposure Limit (CEL) of 5 milligrams per cubic meter ($mg/m^3$) as a ceiling limit for Manganese. A ceiling limit basically states that at no time during the workday exposure, the airborne concentration cannot exceed this level. (29 CFR 1910.1000 Table Z-1).

- The United States Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 10 $mg/m^3$ as a time weighted average (TWA) for Iron. The TWA is based upon an entire workday exposure. (29 CFR 1910.1000 Table Z-1).

- The United States Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) of 15 $mg/m^3$ as a time weighted average (TWA) for Particulates Not Otherwise Specified (Total Particulate). The TWA is based upon an entire workday exposure. (29 CFR 1910.1000 Table Z-1).

## 1.3 Personnel

TTL provided a certified industrial hygienist (CIH) to conduct the employee exposure and ambient air monitoring services in support of the excavation activities for this project. The air monitoring was conducted by Mr. Henry Phillips, CIH of TTL. Credentials for Mr. Phillips are presented in Appendix A.

## 2.0 INITIAL EXPOSURE ACTIVITIES

This section describes the scope-of-work, air monitoring, engineering controls, equipment used, and personal protective equipment (PPE) utilized by the excavation contractor.

### 2.1 Training

The training included recommended engineering controls (such as a water truck to wet down the areas of excavation as well as construction traffic) to help control dust levels and good hygienic practices to prevent hand-to-mouth transfer, all to reduce potential employee workday exposures to manganese, iron and total particulate to be implemented during excavation activities. Also each employee involved with excavation and grading activities received on-site training with regards to potential exposures, health effects with regards to overexposure to the aforementioned metals, and work practices to help minimize their workday exposures.

### 2.2 Surface Excavation Activities

The scope-of-work for this project included the removal of surface soils in an area designated for contractor trailers. Surface soils were removed from this area and stockpiled followed by the placing of slag and stone over the future trailer area. The excavation work involved removing soils to a maximum of two feet below grade, followed by moving this soil to the trailer area for grading purposes. Once the soil was graded, slag and stone were trucked in to create a level base for the placement of contractor's trailers. During this phase there were exposures to ambient dust levels, and potential exposures to manganese and iron in the soils that were being moved, based upon original soil sampling results.

### 2.3 Trenching Excavation Activities

The scope-of-work for this project also included the trenching of area soils for the installation of utility service lines. Soils were removed from this area and stockpiled. Trenching activities were conducted to a depth between six and eight feet below grade. During this phase there were exposures to ambient dust levels, and potential exposures to manganese and iron expected in the soils that were being removed based upon original soil sampling results.

### 2.4 Engineering Controls

Engineering controls implemented by WPM Southern (excavation contractor) personnel during the excavation activities to control the dust levels in the immediate environment of the work area included the following:

- A water truck was used to wet the soils during excavation as well as the traffic lanes utilized by the excavation contractor's equipment.

- All employees utilized good hygienic practices of hand washing before breaks and lunch to prevent hand-to-mouth transfer of soils with potentially high manganese and iron.

- If total particulate levels became elevated, the water truck would increase the frequency of watering rounds throughout the site.

## 3.0 AIR MONITORING

Personal exposure and area environmental samples were collected during the excavation activities. The personal exposure air samples were collected to monitor worker exposure levels in compliance with OSHA. The area ambient environmental samples were collected to evaluate total particulate concentrations upwind and downwind during excavation activities.

### 3.1 Surface Excavation Personal Exposure Air Sampling and Results

During the surface excavation activities both personal and ambient air samples were collected. The personal exposure samples were collected for the determination of manganese and iron airborne concentrations present in the air from excavation activities to which employees may be exposed to during the work day. All air sampling was conducted between August 17 through 20, 2010. Personal samples were collected on workers performing the following operations:

- Excavator Operator
- Bulldozer or Dump Truck Operator
- Front End Loader Operator
- Laborer

The laborer was chosen as the employee where short-term exposure samples would be collected, since this operation was considered to provide the highest potential exposure to generated dust levels.

Personal exposure samples were collected by placing the collection device (SKC PCXR8 Personal Sampling Pump) on the workers throughout the workday. Personal exposure samples were collected from the breathing zone of representative workers. All air sampling was conducted following National Institute of Occupational Safety (NIOSHA) approved Method Number 7300 for metals. This method outlines the sampling media, the flow rate and the minimum and maximum sample volume to be collected.

All air sampling analysis was conducted by an American Industrial Hygiene Association (AIHA) accredited laboratory for the various analytes. Personal exposure air sampling results for manganese was determined to be below the analytical detection limit and iron results ranged from below detection level to 0.3 $mg/m^3$). These analytical levels are significantly below the CEL of 5 $mg/m^3$ for manganese and PEL of 10 $mg/m^3$ for iron. Tables of the personal exposure air monitoring results are included in Appendix B and official laboratory results are included in Appendix D.

### 3.2 Surface Excavation Ambient Air Monitoring Results

Ambient air monitoring for total particulate both upwind and downwind was performed during surface excavation activities. The dust monitor placed upwind failed and did not record any data for period between August 18 through 20, 2010. However the downwind ambient air monitor recorded ambient dust levels and data were logged periodically. The ambient total particulate air monitoring results are included in Appendix C. Based upon the recorded readings, the ambient

total particulate level did not exhibit concentrations of particulate above the PEL of 15 mg/m$^3$ for particulates not otherwise classified (Total Particulate).

Based on the results from the employee exposure air monitoring and the ambient air monitoring data, there is no expected overexposure to manganese, iron and total particulate for employees involved with the surface excavation activities. Therefore TTL recommended additional employee exposure and ambient air monitoring during excavation activities that involved removing soils to a depth between 6 to 8 feet.

## 3.3 Trenching Excavation Personal Exposure Air Sampling and Results

During the trenching excavation activities both personal and ambient air samples were collected. The personal exposure samples were collected for the determination of manganese and iron airborne concentrations present in the air from excavation activities to which employees may be exposed to during the work day. Air sampling was conducted on September 8 and 9, 2010. Personal samples were collected on workers performing the following operations:

- Excavator Operator
- Bulldozer or Dump Truck Operator
- Front End Loader Operator
- Laborer

The laborer was chosen as the employee where short-term exposure samples would be collected, since this operation was considered to provide the highest potential exposure to generated dust levels.

Personal exposure samples were collected by placing the collection device (SKC PCXR8 Personal Sampling Pump) on the workers throughout the workday. Personal exposure samples were collected from the breathing zone of representative workers. All air sampling was conducted following National Institute of Occupational Safety (NIOSHA) approved Method Number 7300 for metals. This method outlines the sampling media, the flow rate and the minimum and maximum sample volume to be collected.

All air sampling analysis was conducted by an American Industrial Hygiene Association (AIHA) accredited laboratory for the various analytes. Personal exposure air sampling results for manganese ranged from 0.0014 mg/m$^3$ to below the analytical detection and iron results ranged from below detection level to 0.18 mg/m$^3$). These analytical levels are significantly below the CEL of 5 mg/m$^3$ ceiling for manganese and the PEL TWA of 10 mg/m$^3$ for iron. Tables of the personal exposure air monitoring results are included in Appendix B and official laboratory results are included in Appendix D.

## 3.4 Trenching Excavation Ambient Air Monitoring Results

Ambient air monitoring for total particulate both upwind and downwind was performed during surface excavation activities. The upwind and downwind ambient air monitors for total particulate recorded ambient dust levels and data were logged periodically. The results are

included in Appendix C. Based upon the recorded readings, the ambient total particulate level did not exhibit concentrations of particulate above the PEL of 15 mg/m$^3$ for particulates not otherwise classified (Total Particulate).

Based on the results from the employee exposure air monitoring and the ambient air monitoring data, there is no expected overexposure to manganese, iron and total particulate for employees involved with the surface excavation activities.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the employee exposure air monitoring and the ambient air monitoring results, it is TTL's professional opinion that there is no potential overexposure to manganese, iron or total particulate for employees involved with excavation activities. This report will serve as a negative exposure assessment for the site during excavation activities. Subsequent construction activities similar to those monitored during this assessment, performed by similarly trained workers and following similar work practices, would not be expected to produce worker exposures above the CEL for Manganese or the PEL for Iron. However, this air monitoring investigation can only be considered a "snapshot in time" of conditions present during the time of each air monitoring investigation. Weather conditions, and work practices may impact employee exposures. If employee complaints of air quality or employee sick time rates increase, then additional air monitoring may be required.

# APPENDIX A

# TTL CERTIFICATIONS AND ACCREDITATIONS

ABIH®

american board of industrial hygiene®

organized to improve the practice of industrial hygiene
proclaims that

# *Henry A. Phillips*

having met all requirements through
education, experience and examination,
is hereby certified in the

**COMPREHENSIVE PRACTICE**
**of**
**INDUSTRIAL HYGIENE**

and has the right to use the designations

**CERTIFIED INDUSTRIAL HYGIENIST**

**CIH**

Certificate Number: 9370 CP

Awarded: November 9, 2007

Expiration Date: June 1, 2013

Barbara J. Dawson
Chair ABIH

Lynn C. O'Donnell
Executive Director ABIH

# APPENDIX B

# PERSONAL EXPOSURE AIR MONITORING RESULTS DATA

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-01 | Brian Flick - Front End Loader | 9:51 AM | 1:42 PM | 2 | 462 | Mn | <0.0022 |
| | | | | | | Fe | 0.036 |
| 687401-02 | Greg Grimmer - Backhoe | 10:00 AM | 1:50 PM | 1.98 | 455 | Mn | <0.0022 |
| | | | | | | Fe | 0.023 |
| 687401-03 | Gene Hammond - Laborer | 10:00 AM | 1:51 PM | 1.96 | 453 | Mn | <0.0022 |
| | | | | | | Fe | 0.033 |
| 687401-04A | Craig Ewen - Bulldozer | 10:00 AM | 12:09 PM | 2.1 | 271 | Mn | <0.0037 |
| | | | | | | Fe | 0.035 |
| 687401-04B | Craig Ewen - Bulldozer | 12:09 PM | 12:24 PM | 2.1 | 31.5 | Mn | <0.016 |
| | | | | | | Fe | <0.016 |
| 687401-04C | Craig Ewen - Bulldozer | 12:24 PM | 12:39 PM | 2.1 | 31.5 | Mn | <0.016 |
| | | | | | | Fe | <0.016 |
| 687401-05 | Field Blank | | | | | Mn | <1 ug |
| | | | | | | Fe | <1 ug |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-06 | Craig Ewen - Bulldozer | 7:10 AM | 2:10 PM | 1.98 | 832 | Mn | <0.0012 |
| | | | | | | Fe | 0.0075 |
| 687401-07 | Brian Flick - Front End Loader | 7:10 AM | 2:10 PM | 1.95 | 819 | Mn | <0.0012 |
| | | | | | | Fe | 0.0049 |
| 687401-08 | Greg Grimmer - Back Hoe | 7:10 AM | 2:10 PM | 2.1 | 882 | Mn | <0.0011 |
| | | | | | | Fe | 0.025 |
| 687401-09A | Gene Hammond - Laborer | 7:10 AM | 1:10 PM | 2 | 720 | Mn | <0.0014 |
| | | | | | | Fe | <0.0014 |
| 687401-09B | Gene Hammond - Laborer | 1:10 PM | 1:25 PM | 2 | 30 | Mn | <0.033 |
| | | | | | | Fe | <0.033 |
| 687401-09C | Gene Hammond - Laborer | 1:25 PM | 1:40 PM | 2 | 30 | Mn | <0.033 |
| | | | | | | Fe | <0.033 |
| 687401-09D | Gene Hammond - Laborer | 1:40 PM | 1:55 PM | 2 | 30 | Mn | <0.033 |
| | | | | | | Fe | <0.033 |
| 687401-10 | Field Blank | | | | | Mn | <1 ug |
| | | | | | | Fe | <1ug |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-11 | Craig Ewen - Dump Truck | 7:00 AM | 2:00 PM | 2.05 | 861 | Mn | <0.0012 |
| | | | | | | Fe | 0.017 |
| 687401-12 | Brian Flick - Front End Loader | 7:00 AM | 2:00 PM | 1.98 | 832 | Mn | <0.0012 |
| | | | | | | Fe | 0.035 |
| 687401-13 | Greg Grimmer - Back Hoe | 7:00 AM | 2:00 PM | 2 | 840 | Mn | <0.0012 |
| | | | | | | Fe | 0.019 |
| 687401-14A | Gene Hammond - Laborer | 7:00 AM | 1:15 PM | 1.97 | 739 | Mn | <0.0014 |
| | | | | | | Fe | 0.023 |
| 687401-14B | Gene Hammond - Laborer | 1:15 PM | 1:30 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | | Fe | 0.13 |
| 687401-14C | Gene Hammond - Laborer | 1:30 PM | 1:45 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | | Fe | 0.21 |
| 687401-14D | Gene Hammond - Laborer | 1:45 PM | 2:00 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | | Fe | 0.31 |
| 687401-15 | Field Blank | | | | | Mn | <1 ug |
| | | | | | | Fe | <1 ug |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-16 | Brian Flick - Front End Loader | 7:00 AM | 2:00 PM | 2.2 | 924 | Mn | <0.0012 |
| | | | | | | Fe | 0.03 |
| 687401-17 | Craig Ewen - Bulldozer | 7:00 AM | 2:00 PM | 2.1 | 882 | Mn | <0.0011 |
| | | | | | | Fe | 0.0099 |
| 687401-18 | Greg Grimmer - Back Hoe | 7:00 AM | 2:00 PM | 1.98 | 832 | Mn | <0.0012 |
| | | | | | | Fe | 0.019 |
| 687401-19A | Gene Hammond - Laborer | 7:00 AM | 1:15 PM | 1.99 | 746 | Mn | <0.0013 |
| | | | | | | Fe | 0.022 |
| 687401-19B | Gene Hammond - Laborer | 1:15 PM | 1:30 PM | 1.99 | 30 | Mn | <0.033 |
| | | | | | | Fe | <0.033 |
| 687401-19C | Gene Hammond - Laborer | 1:30 PM | 1:45 PM | 1.99 | 30 | Mn | <0.033 |
| | | | | | | Fe | <0.033 |
| 687401-19D | Gene Hammond - Laborer | 1:45 PM | 2:00 PM | 1.99 | 30 | Mn | <0.033 |
| | | | | | | Fe | 0.037 |
| 687401-20 | Field Blank | | | | | Mn | <0.001 mg |
| | | | | | | Fe | <0.001 mg |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-20 | Craig Ewen - Bulldozer | 7:10 AM | 2:10 PM | 2 | 840 | Mn | <0.0012 |
| | | | | | 840 | Fe | 0.014 |
| 687401-21 | Teresa Swiger - Front End Loader | 7:10 AM | 2:10 PM | 1.98 | 832 | Mn | <0.0012 |
| | | | | | 832 | Fe | 0.064 |
| 687401-22 | Dave Simwick - Excavator | 7:10 AM | 2:10 PM | 2.1 | 882 | Mn | <0.0011 |
| | | | | | 882 | Fe | 0.063 |
| 687401-23A | Allen Lockhart - Laborer | 7:10 AM | 1:25 PM | 1.96 | 735 | Mn | <0.0014 |
| | | | | | 735 | Fe | 0.035 |
| 687401-23B | Allen Lockhart - Laborer | 1:25 PM | 1:40 PM | 1.96 | 29 | Mn | <0.034 |
| | | | | | 29 | Fe | <0.034 |
| 687401-23C | Allen Lockhart - Laborer | 1:40 PM | 1:55 PM | 1.96 | 29 | Mn | <0.034 |
| | | | | | 29 | Fe | <0.034 |
| 687401-23D | Allen Lockhart - Laborer | 1:55 PM | 2:10 PM | 1.96 | 29 | Mn | <0.034 |
| | | | | | 29 | Fe | <0.034 |
| 687401-24 | Field Blank | | | | | Mn | <0.001 mg |
| | | | | | | Fe | <0.001 mg |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

U.S. Steel - Gary Works
Strategic Coke Improvement Project - Phase 1
New Coke Area
Gary, Indiana

| SAMPLE # | EMPLOYEE | ON | OFF | FLOW | VOL | PARAMETER | CONCENTRATION (mg/M3) |
|---|---|---|---|---|---|---|---|
| 687401-25 | Craig Ewen - Bulldozer | 6:50 AM | 1:50 PM | 2.1 | 882 | Mn | <0.0011 |
| | | | | | 882 | Fe | 0.0056 |
| 687401-26 | Brian Flick - Grader | 6:50 AM | 1:50 PM | 2.05 | 861 | Mn | 0.0014 |
| | | | | | 861 | Fe | 0.035 |
| 687401-27 | Greg Grimmer - Excavator | 6:50 AM | 1:50 PM | 1.99 | 836 | Mn | <0.0012 |
| | | | | | 836 | Fe | 0.014 |
| 687401-28A | Allen Lockhart - Laborer | 6:50 AM | 1:05 PM | 1.97 | 739 | Mn | <0.0014 |
| | | | | | 739 | Fe | 0.0084 |
| 687401-28B | Allen Lockhart - Laborer | 1:05 PM | 1:20 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | 30 | Fe | <0.033 |
| 687401-28C | Allen Lockhart - Laborer | 1:20 PM | 1:35 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | 30 | Fe | 0.18 |
| 687401-28D | Allen Lockhart - Laborer | 1:35 PM | 1:50 PM | 1.97 | 30 | Mn | <0.033 |
| | | | | | 30 | Fe | 0.048 |
| 687401-29 | Field Blank | | | | | Mn | <0.001 mg |
| | | | | | | Fe | <0.001 mg |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

# APPENDIX C

# AMBIENT TOTAL PARTICULATE AIR MONITORING DATA

Ambient Total Particulate Air Monitoring
U.S. Steel – Gary Works
Strategic Coke Improvement Project – Phase 1
New Coke Area
Gary, Indiana

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 8/17/2010 | 8:30 AM | Downwind SE | 0.0306 | No Work |
| | 8:35 AM | Upwind NW | 0.0507 | No Work - US Steel at stock piles |
| | 9:23 AM | Downwind SE | 0.0364 | No Work - US Steel truck traffic |
| | 9:28 AM | Upwind NW | 0.0276 | No Work |
| | 10:33 AM | Downwind SE | 0.0254 | Work Staging - US Steel truck traffic |
| | 10:37 AM | Upwind NW | 0.0148 | Work Staging - US Steel truck traffic |
| | 11:40 AM | Downwind SE | 0.067 | Work Staging - US Steel truck traffic |
| | 11:43 AM | Upwind NW | 0.078 | Work Staging - US Steel truck traffic |
| | 12:52 PM | Downwind SE | 0.0116 | Work Staging - US Steel truck traffic |
| | 1:03 PM | Upwind NW | 0.0198 | Work Staging - US Steel truck traffic |
| | 1:50 PM | Downwind SE | 0.0345 | No visible work - water truck moving |
| | 1:55 PM | Upwind NW | 0.0301 | No visible work - water truck moving |

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 8/18/2010 | 7:00 AM | Downwind NW | 0.0337 | Work Starting |
| | 8:30 AM | Downwind NW | 0.0404 | Excavation grading work |
| | 9:15 AM | Downwind NW | 0.0187 | Excavation grading work |
| | 10:45 AM | Downwind NW | 0.0222 | Excavation grading work |
| | 11:30 AM | Downwind NW | 0.0387 | Excavation grading work |
| | 12:20 PM | Downwind NW | 0.0387 | Excavation grading work |
| | 1:30 PM | Downwind NW | 0.0242 | Excavation grading work |
| | 2:00 PM | Downwind NW | 0.0486 | Excavation grading work |

NOTE: No upwind results; battery dead and charger not functioning.

Ambient Total Particulate Air Monitoring
U.S. Steel – Gary Works
Strategic Coke Improvement Project – Phase 1
New Coke Area
Gary, Indiana

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 8/19/2010 | 6:55 AM | Downwind NW | 0.0282 | Work Starting |
| | 8:00 AM | Downwind NW | 0.0384 | |
| | 10:30 AM | Downwind NW | 0.0287 | Excavation grading work |
| | 11:40 AM | Downwind NW | 0.0206 | Excavation grading work |
| | 12:15 PM | Downwind NW | 0.1618 | Wind Shift - Excavation grading work |
| | 12:45 PM | Downwind NW | 0.0392 | US Steel Truck Traffic |
| | 1:35 PM | Downwind NW | 0.0487 | US Steel Truck Traffic |
| | 2:20 PM | Downwind NW | 0.0596 | US Steel Truck Traffic |
| | 3:10 PM | Downwind NW | 0.0687 | US Steel Truck Traffic |

NOTE: No upwind results; battery dead and charger not functioning.

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 8/20/2010 | 6:50 AM | Downwind NW | 0.1226 | US Steel Truck Traffic |
| | 7:15 AM | Downwind NW | 0.1813 | Slag Trucks |
| | 7:40 AM | Downwind NW | 0.0894 | Grading Slag |
| | 9:00 AM | Downwind NW | 0.0732 | Grading Slag |
| | 10:00 AM | Downwind NW | 0.0476 | Slag Truck Traffic |
| | 11:50 AM | Downwind NW | 0.0548 | Slag Truck Traffic |
| | 1:20 PM | Downwind NW | 0.115 | Slag Truck Traffic |
| | 2:20 PM | Downwind NW | 0.125 | Slag Truck Traffic |
| | 3:00 PM | Downwind NW | 0.0905 | Slag Truck Traffic |

NOTE: No upwind results; motor not functioning.

Ambient Total Particulate Air Monitoring
U.S. Steel – Gary Works
Strategic Coke Improvement Project – Phase 1
New Coke Area
Gary, Indiana

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 9/8/2010 | 8:00 AM | Upwind NW | 0.0448 | Light wind |
| | 8:10 AM | Downwind S | 0.058 | Light wind |
| | 9:00 AM | Upwind NW | 0.0875 | Light wind - Trenching Work |
| | 9:10 AM | Downwind S | 0.125 | Light wind - Trenching Work |
| | 10:15 AM | Upwind NW | 0.044 | Light wind - Trenching Work |
| | 10:25 AM | Downwind S | 0.068 | Light wind - Trenching Work |
| | 11:30 AM | Upwind NW | 0.034 | Light wind - Trenching Work |
| | 11:40 AM | Downwind S | 0.048 | Light wind - Trenching Work |
| | 1:00 PM | Upwind NW | 0.055 | Light wind - Trenching Work |
| | 1:10 PM | Downwind S | 0.067 | Light wind - Trenching Work |
| | 2:00 PM | Upwind NW | 0.085 | Light wind - Trenching Work |
| | 2:10 PM | Downwind S | 0.134 | Light wind - Trenching Work |

Ambient Total Particulate Air Monitoring
U.S. Steel – Gary Works
Strategic Coke Improvement Project – Phase 1
New Coke Area
Gary, Indiana

| DATE | TIME | LOCATION | RESULTS (mg/M3) | NOTES |
|---|---|---|---|---|
| 9/9/2010 | 7:20 AM | Upwind NW | 0.038 | Light wind |
| | 7:30 AM | Downwind SE | 0.058 | Light wind |
| | 8:00 AM | Upwind NW | 0.068 | Light wind - Trenching Work |
| | 8:10 AM | Downwind SE | 0.076 | Light wind - Trenching Work |
| | 9:15 AM | Upwind NW | 0.044 | Light wind - Trenching Work |
| | 9:25 AM | Downwind SE | 0.068 | Light wind - Trenching Work |
| | 10:20 AM | Upwind NW | 0.028 | Light wind - Trenching Work |
| | 10:30 AM | Downwind SE | 0.058 | Light wind - Trenching Work |
| | 11:00 AM | Upwind NW | 0.089 | Light wind - Trenching Work |
| | 11:10 AM | Downwind SE | 0.123 | Light wind - Trenching Work |
| | 1:20 PM | Upwind NW | 0.095 | Light wind - Trenching Work |
| | 1:30 PM | Downwind SE | 0.134 | Light wind - Trenching Work |
| | 2:00 PM | Upwind NW | 0.126 | Light wind - Trenching Work |
| | 2:10 PM | Downwind SE | 0.146 | Light wind - Trenching Work |

# APPENDIX D

# OFFICIAL LABORATORY RESULTS

August 18, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10080998

Reference:

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 7 samples on 8/18/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

# CASE NARRATIVE

**Date:** *18-Aug-10*

**Client:** **TTL ASSOCIATES**

**Project:**

**Work Order No** **10080998**

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *18-Aug-10*

**Client:** TTL ASSOCIATES

**Project:**

**Work Order No:** 10080998

**Client ID:** 687401-01 B.FLICK
**Lab ID:** 001A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 452

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 16 | 0.036 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.0022 | 1 | NIOSH 7300 | 08/18/2010 DH |

**Client ID:** 687401-02 G. GRIMMER
**Lab ID:** 002A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 455

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 10 | 0.023 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.0022 | 1 | NIOSH 7300 | 08/18/2010 DH |

**Client ID:** 687401-03 G. HAMMOND
**Lab ID:** 003A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 453

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 15 | 0.033 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.0022 | 1 | NIOSH 7300 | 08/18/2010 DH |

**Client ID:** 687401-04A C. EWEN
**Lab ID:** 004A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 271

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 9.4 | 0.035 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.0037 | 1 | NIOSH 7300 | 08/18/2010 DH |

# ANALYTICAL RESULTS

**Date:** *18-Aug-10*

**Client:** TTL ASSOCIATES

**Project:**

**Work Order No:** 10080998

**Client ID:** 687401-04B C. EWEN
**Lab ID:** 005A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 63

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.016 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.016 | 1 | NIOSH 7300 | 08/18/2010 DH |

**Client ID:** 687401-04C C. EWEN
**Lab ID:** 006A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** 63

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.016 | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | <0.016 | 1 | NIOSH 7300 | 08/18/2010 DH |

**Client ID:** 687401-05 FIELD BLANK
**Lab ID:** 007A
**Matrix:** MCE Filter, .8um

**Date Sampled:** 8/17/2010
**DateReceived:** 8/18/2010
**Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 08/18/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 08/18/2010 DH |

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10080998

## Bureau Veritas North America, Inc.

**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323

**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 8 / 18 / 10 4PM
Charges Authorized? ☒ Yes ☐ No
(If yes, Initial here) HP
☐ Email Results PHONE VERBAL ☐ Fax

**REPORT RESULTS TO**
Name: HENRY PHILLIPS
Company: TTL ASSOCIATES
Mailing Address: 44265 PLYMOUTH OAKS BLVD.
City, State, Zip: PLYMOUTH, MI 48170
Telephone No.: 734 634-0604
FAX No.:
Client Job No.:
Dept.:

**BILLING/INVOICE INFORMATION**
☐ PO # ☐ Call for Credit Card Information ☐ Direct Bill
Name:
Company:
Address:
City, State, Zip:

**Special instructions and/or specific regulatory requirements:**
(method, limit of detection, etc.)
SAME DAY TAT CALL W/VERBAL RESULTS TO 734 634-0604 BY 4PM

* Explanation of Preservative

**Soils:** Which state are these from? ____

**Waters:**
☐ Drinking Water
☐ Groundwater
☐ Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MANGANESE | IRON | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-01 B. FLICK | 8/17/10 | 3:00P | MCE | 462L | 1 | X | X | |
| 687401-02 G. GRIMMER | ↓ | ↓ | ↓ | 455L | 1 | X | X | |
| 687401-03 G. HAMMOND | | | | 453L | 1 | X | X | |
| 687401-04A C. EWEN | | | | 271L | 1 | X | X | |
| 687401-04B C. EWEN | | | | 63L | 1 | X | X | |
| 687401-04C C. EWEN | | | | 63L | 1 | X | X | |
| 687401-05 FIELD BLANK | 8/17/10 | 3:00P | | — | 1 | X | X | |

**CHAIN OF CUSTODY**
Collected by: HENRY PHILLIPS (print)
Collector's Signature:
Relinquished by: Date/Time 8/17/10 4P
Received by: Date/Time
Relinquished by: Date/Time
Received by: Date/Time
Method of Shipment:
Received at Lab by: Date/Time

Authorized by: Date 8/17/10
(Client Signature **MUST** Accompany Request)

Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

August 19, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10081076

Reference: 6874.01

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 8 samples on 8/19/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

## CASE NARRATIVE

**Date:** *19-Aug-10*

| | |
|---|---|
| **Client:** | **TTL ASSOCIATES** |
| **Project:** | **6874.01** |
| **Work Order No** | **10081076** |

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *19-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10081076

**Client ID:** 687401-06 C.EWEN **Date Sampled:** 8/18/2010

**Lab ID:** 001A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 832

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 6.2 | 0.0075 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-07 B.FLICK **Date Sampled:** 8/18/2010

**Lab ID:** 002A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 819

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 4.0 | 0.0049 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-08 G.GRIMMER **Date Sampled:** 8/18/2010

**Lab ID:** 003A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 882

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 22 | 0.025 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.0011 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-09A G.HAMMOND **Date Sampled:** 8/18/2010

**Lab ID:** 004A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 720

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.0014 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.0014 | 1 | NIOSH 7300 | 08/19/2010 DH |

# ANALYTICAL RESULTS

**Date:** *19-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10081076

**Client ID:** 687401-09B G.HAMMOND **Date Sampled:** 8/18/2010

**Lab ID:** 005A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-09C G.HAMMOND **Date Sampled:** 8/18/2010

**Lab ID:** 006A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-09D G.HAMMOND **Date Sampled:** 8/18/2010

**Lab ID:** 007A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/19/2010 DH |

**Client ID:** 687401-10 FIELD BLANK **Date Sampled:** 8/18/2010

**Lab ID:** 008A **DateReceived:** 8/19/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 08/19/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 08/19/2010 DH |

# ANALYTICAL RESULTS

**Date:** *19-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01

**Work Order No:** 10081076

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10081076

## Bureau Veritas North America, Inc.

**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323

**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 8 / 19 / 10 4PM
Charges Authorized? [X] Yes [ ] No
(If yes, Initial here) _____
[ ] Email Results VERBAL CELL # [ ] Fax

**REPORT RESULTS TO**
Name: HENRY PHILLIPS
Company: TTL ASSOCIATES, INC
Mailing Address: 44265 PLYMOUTH OAKS BLVD.
City, State, Zip: PLYMOUTH, MI 48170
Telephone No.: 734 634-0604 FAX No.:
Client Job No.: 6874.01
Dept.:

**BILLING/INVOICE INFORMATION**
[ ] PO # _____ [ ] Call for Credit Card Information [ ] Direct Bill
Name:
Company:
Address:
City, State, Zip:

**Special instructions and/or specific regulatory requirements:**
(method, limit of detection, etc.)
CALL WITH VERBAL RESULTS
734 634-0604

* Explanation of Preservative

**Soils:** Which state are these from? _____

**Waters:**
[ ] Drinking Water
[ ] Groundwater
[ ] Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MAGANESE | IRON | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-06 C. EWEN | 8/18/10 | 7A 3P | MCE | 832L | 1 | X | X | |
| 687401-07 B. FLICK | | | | 819L | 1 | X | X | |
| 687401-08 G. GRIMMER | | | | 882L | 1 | X | X | |
| 687401-09A G. HAMMOND | | | | 720L | 1 | X | X | |
| 687401-09B " | | | | 30L | 1 | X | X | |
| 687401-09C " | | | | 30L | 1 | X | X | |
| 687401-09D " | | | | 30L | 1 | X | X | |
| 687401-10 FIELD BLANK | | | | — | 1 | X | X | |

**CHAIN OF CUSTODY**
Collected by: HENRY PHILLIPS (print)
Relinquished by: Henry Phillips Date/Time 8/18/10
Relinquished by: Date/Time
Method of Shipment:

Collector's Signature: Henry Phillips
Received by: Date/Time
Received by: Date/Time
Received at Lab by: Dan Eck Date/Time 8/19
Sample Condition Upon Receipt: [X] Acceptable [ ] Other (explain) 1009

Authorized by: Henry Phillips Date 8/18/10
(Client Signature **MUST** Accompany Request)

Page ____ of ____

August 20, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10081172

Reference: B874.01

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 8 samples on 8/20/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

## CASE NARRATIVE

**Date:** *20-Aug-10*

| | |
|---|---|
| **Client:** | **TTL ASSOCIATES** |
| **Project:** | **B874.01** |
| **Work Order No** | **10081172** |

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *20-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** B874.01 **Work Order No:** 10081172

**Client ID:** 687401-11 C. EWEN **Date Sampled:** 8/19/2010

**Lab ID:** 001A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 861

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 15 | 0.017 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401-12 B. FLICK **Date Sampled:** 8/19/2010

**Lab ID:** 002A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 832

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 2.9 | 0.0035 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401-13 G. GRIMMER **Date Sampled:** 8/19/2010

**Lab ID:** 003A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 840

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 16 | 0.019 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401-14A G. HAMMOND **Date Sampled:** 8/19/2010

**Lab ID:** 004A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 739

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 17 | 0.023 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.0014 | 1 | NIOSH 7300 | 08/20/2010 DH |

# ANALYTICAL RESULTS

**Date:** *20-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** B874.01 **Work Order No:** 10081172

**Client ID:** 687401-14B G. HAMMOND **Date Sampled:** 8/19/2010

**Lab ID:** 005A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 3.8 | 0.13 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401-14C G. HAMMOND **Date Sampled:** 8/19/2010

**Lab ID:** 006A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 6.2 | 0.21 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401-14D G. HAMMOND **Date Sampled:** 8/19/2010

**Lab ID:** 007A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 9.4 | 0.31 | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/20/2010 DH |

**Client ID:** 687401- BLANK **Date Sampled:** 8/19/2010

**Lab ID:** 008A **DateReceived:** 8/20/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 08/20/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 08/20/2010 DH |

# ANALYTICAL RESULTS

**Date:** *20-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** B874.01

**Work Order No:** 10081172

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10081172

## Bureau Veritas North America, Inc.

**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323

**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 8 / 20 / 10 5P
Charges Authorized? ☒ Yes ☐ No
(If yes, Initial here) NP
☐ Email Results 734 634-0604 ☐ Fax

**REPORT RESULTS TO**
Name: HENRY PHILLIPS
Company: TTL ASSOCIATES
Mailing Address: 44265 PLYMOUTH OAKS BLVD
City, State, Zip: PLYMOUTH MI 48170
Telephone No.: 734 634-0604 FAX No.:
Client Job No.: 6874.01
Dept.:

**BILLING/INVOICE INFORMATION**
☐ PO # ☐ Call for Credit Card Information ☐ Direct Bill
Name
Company
Address
City, State, Zip

**Special instructions and/or specific regulatory requirements:**
(method, limit of detection, etc.)
VERBAL RESULTS BY 5P 8/20/10

* Explanation of Preservative

**Soils:** Which state are these from? ____

**Waters:** ☐ Drinking Water ☐ Groundwater ☐ Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MP | Fe | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-11 C. EWEN | 8/19/10 | 3100P | MCE | 861L | | X | X | |
| 687401-12 B. FLICK | | | | 832L | | X | X | |
| 687401-13 G. GRIMMER | | | | 840L | | X | X | |
| 687401-14A G. HAMMOND | | | | 739L | | X | X | |
| 687401-14B " | | | | 30L | | X | X | |
| 687401-14C " | | | | 30L | | X | X | |
| 687401-14D " | | | | 30L | | X | X | |
| 687401-BLANK | | | | — | | X | X | |

**CHAIN OF CUSTODY**

Collected by: HENRY PHILLIPS (print) Collector's Signature: Henry Phillips
Relinquished by: Date/Time
Relinquished by: Date/Time
Method of Shipment:
Received by: Date/Time
Received by: Date/Time
Received at Lab by: Date/Time
Sample Condition Upon Receipt: ☐ Acceptable ☐ Other (explain)

Authorized by: Henry Phillips Date 8/19/10
(Client Signature **MUST** Accompany Request)

August 23, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10081282

Reference: 6874.1

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 8 samples on 8/21/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

## CASE NARRATIVE

**Date:** *23-Aug-10*

| | |
|---|---|
| **Client:** | **TTL ASSOCIATES** |
| **Project:** | **6874.1** |
| **Work Order No** | **10081282** |

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *23-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.1 **Work Order No:** 10081282

**Client ID:** 687401-16 B. FLICK **Date Sampled:** 8/20/2010

**Lab ID:** 001A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 824

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 25 | 0.030 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** 687401-17 C. EWEN **Date Sampled:** 8/20/2010

**Lab ID:** 002A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 882

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 8.7 | 0.0099 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.0011 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** 687401-18 G. GRIMMER **Date Sampled:** 8/20/2010

**Lab ID:** 003A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 832

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 16 | 0.019 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** 687401-19A G. HAMMOND **Date Sampled:** 8/20/2010

**Lab ID:** 004A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 746

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 17 | 0.022 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.0013 | 1 | NIOSH 7300 | 08/23/2010 DH |

# ANALYTICAL RESULTS

**Date:** *23-Aug-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.1 **Work Order No:** 10081282

**Client ID:** 687401-19B G. HAMMOND **Date Sampled:** 8/20/2010

**Lab ID:** 005A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** 687401-19C G. HAMMOND **Date Sampled:** 8/20/2010

**Lab ID:** 006A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** 687401-19D G. HAMMOND **Date Sampled:** 8/20/2010

**Lab ID:** 007A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 1.1 | 0.037 | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 08/23/2010 DH |

**Client ID:** BLANK **Date Sampled:** 8/20/2010

**Lab ID:** 008A **DateReceived:** 8/21/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 08/23/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 08/23/2010 DH |

# ANALYTICAL RESULTS

**Date:** *23-Aug-10*

**Client:** **TTL ASSOCIATES**

**Project:** **6874.1**

**Work Order No:** **10081282**

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10081282

## Bureau Veritas North America, Inc.


**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323


**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 8 / 21 /10
Charges Authorized? [X] Yes [ ] No
(If yes, Initial here) HP
[ ] Email Results 734 634-0604 [ ] Fax

8-23 ok per client on 8/23 HP

**REPORT RESULTS TO**
Name: HENRY PHILLIPS
Company: TTL ASSOCIATES
Mailing Address: 44265 PLYMOUTH OAKS BLVD.
City, State, Zip: PLYMOUTH, MI 48170
Telephone No.: 734 634-0604
FAX No.:
Client Job No.: 6874.01
Dept.:

**BILLING/INVOICE INFORMATION**
[ ] PO # [ ] Call for Credit Card Information [ ] Direct Bill
Name:
Company:
Address:
City, State, Zip:

**Special instructions and/or specific regulatory requirements:**
(method, limit of detection, etc.)
CALL 734 634-0604 WITH VERBAL RESULTS

* Explanation of Preservative

**Soils:** Which state are these from?

**Waters:**
[ ] Drinking Water
[ ] Groundwater
[ ] Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MN | Fe | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-16 B. FLICK | 8/20/10 | 2400 | MCE | 924 L | 1 | X | X | |
| 687401-17 C. EWEN | " | " | " | 882 L | 1 | X | X | |
| 687401-18 G. GRIMNER | " | " | " | 832 L | 1 | X | X | |
| 687401-19A G. HAMMOND | " | " | " | 746 L | 1 | X | X | |
| 687401-19B " | " | " | " | 30 L | 1 | X | X | |
| 687401-19C " | " | " | " | 30 L | 1 | X | X | |
| 687401-19D " | " | " | " | 30 L | 1 | X | X | |
| 687401-20 BLANK | " | " | " | — | 1 | X | X | |

**CHAIN OF CUSTODY**

Collected by: HENRY PHILLIPS (print)
Collector's Signature: Henry Phillips
Relinquished by: Henry Phillips Date/Time 8/20/10 3PM
Received by: Date/Time
Relinquished by: Date/Time
Received by: Date/Time
Method of Shipment:
Received at Lab by: Date/Time 8/23/10
Sample Condition Upon Receipt: [ ] Acceptable [ ] Other (explain)

Authorized by: Henry Phillips Date 8/20/10
(Client Signature **MUST** Accompany Request)

Rec'd Saturday?

Page ____ of ____

September 09, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10090386

Reference: 6874.01

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 8 samples on 9/9/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

## CASE NARRATIVE

**Date:** *09-Sep-10*

| | |
|---|---|
| **Client:** | **TTL ASSOCIATES** |
| **Project:** | **6874.01** |
| **Work Order No** | **10090386** |

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *09-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10090386

**Client ID:** 687401-20 C. EWEN **Date Sampled:** 9/8/2010

**Lab ID:** 001A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 840

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 12 | 0.014 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-21 T. SWIGER **Date Sampled:** 9/8/2010

**Lab ID:** 002A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 832

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 5.3 | 0.0064 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-22 D. SIMWICK **Date Sampled:** 9/8/2010

**Lab ID:** 003A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 882

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 5.5 | 0.0063 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.0011 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-23A A. LOCKHART **Date Sampled:** 9/8/2010

**Lab ID:** 004A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 735

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 25 | 0.035 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.0014 | 1 | NIOSH 7300 | 09/09/2010 DH |

# ANALYTICAL RESULTS

**Date:** *09-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10090386

**Client ID:** 687401-23B A. LOCKHART **Date Sampled:** 9/8/2010

**Lab ID:** 005A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 29

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-23C A. LOCKHART **Date Sampled:** 9/8/2010

**Lab ID:** 006A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 29

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-23D A. LOCKHART **Date Sampled:** 9/8/2010

**Lab ID:** 007A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 29

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | <0.034 | 1 | NIOSH 7300 | 09/09/2010 DH |

**Client ID:** 687401-24 BLANK **Date Sampled:** 9/8/2010

**Lab ID:** 008A **DateReceived:** 9/9/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 09/09/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 09/09/2010 DH |

# ANALYTICAL RESULTS

**Date:** *09-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01

**Work Order No:** 10090386

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10090386

## Bureau Veritas North America, Inc.

**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323

**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 9/9/10 PM
Charges Authorized? [X] Yes [ ] No
(If yes, Initial here) HP
[ ] Email Results 734 634-0604 VERBALS [ ] Fax

**REPORT RESULTS TO**
Name: HENRY Phillips
Company: TTL ASSOCIATES
Mailing Address: 44265 PLYMOUTH OAKS BLVD.
City, State, Zip: PLYMOUTH, MI 48170
Telephone No.: 734 634-0604
FAX No.:
Client Job No.: 6874.01
Dept.:

**BILLING/INVOICE INFORMATION**
[ ] PO # [ ] Call for Credit Card Information [ ] Direct Bill
Name:
Company: SAME
Address:
City, State, Zip:

**Special instructions and/or specific regulatory requirements:** (method, limit of detection, etc.)
VERBAL RESULTS BY 9/9/10 PM
TO 734 634-0604
* Explanation of Preservative

**Soils:** Which state are these from?

**Waters:**
[ ] Drinking Water
[ ] Groundwater
[ ] Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MN | FP | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-20 C. EWEN ✓ | 9/8/10 | | MCE | 840L | | X | X | |
| 687401-21 T. SWIGER ✓ | | | | 832L | | | | |
| 687401-22 D. SIMWICK ✓ | | | | 882L | | | | |
| 687401-23A A. LOCKHART ✓ | | | | 735L | | | | |
| 687401-23B ✓ | | | | 29L | | | | |
| 687401-23C ✓ | | | | 29L | | | | |
| 687401-23D ✓ | | | | 29L | | | | |
| 687401-24 BLANK ✓ | | | | — | | | | |

**CHAIN OF CUSTODY**
Collected by: HENRY Phillips (print)
Collector's Signature: Henry Phillips
Relinquished by: Henry Phillips Date/Time 9/8/10
Received by: Date/Time
Relinquished by: Date/Time
Received by: Date/Time
Method of Shipment:
Received at Lab by: Date/Time 9/9/10 9:42a
Authorized by: Henry Phillips Date 9/8/10
(Client Signature **MUST** Accompany Request)
Sample Condition Upon Receipt: [X] Acceptable [ ] Other (explain)

September 10, 2010

Henry Phillips
TTL ASSOCIATES
44265 Plymouth Oaks Blvd
Plymouth, MI 48170-

Bureau Veritas Work Order No. 10090444

Reference: 6874.01

Dear Henry Phillips:

Bureau Veritas North America, Inc. received 8 samples on 9/10/2010 for the analyses presented in the following report.

Enclosed is a copy of the Chain-of-Custody record, acknowledging receipt of these samples. Please note that any unused portion of the samples will be discarded 30 days after the date of this report, unless you have requested otherwise.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number provided below.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact a Client Services Representative at (800) 806-5887.

Sincerely,

Laura McMahon-Parker

Laura McMahon-Parker
Manager, Client Services

cc:

**Bureau Veritas North America, Inc.**
22345 Roethel Drive
Novi, MI 48375

Main: (248) 344.1770
Fax: (248) 344.2655
www.us.bureauveritas.com

## CASE NARRATIVE

**Date:** *10-Sep-10*

| | |
|---|---|
| **Client:** | **TTL ASSOCIATES** |
| **Project:** | **6874.01** |
| **Work Order No** | **10090444** |

The results of this report relate only to the samples listed in the body of this report.

Unless otherwise noted below, the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and/or do not adversely affect the reported results, and 3) the industrial hygiene results have not been blank corrected.

# ANALYTICAL RESULTS

**Date:** *10-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10090444

**Client ID:** 687401-25 C. EWEN **Date Sampled:** 9/9/2010

**Lab ID:** 001A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 882

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 5.0 | 0.0056 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.0011 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-26 B. FLICK **Date Sampled:** 9/9/2010

**Lab ID:** 002A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 861

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 30 | 0.035 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | 1.2 | 0.0014 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-27 G. GRIMMER **Date Sampled:** 9/9/2010

**Lab ID:** 003A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 836

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 11 | 0.014 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.0012 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-28A A. LOCKHART **Date Sampled:** 9/9/2010

**Lab ID:** 004A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 739

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 6.2 | 0.0084 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.0014 | 1 | NIOSH 7300 | 09/10/2010 DH |

# ANALYTICAL RESULTS

**Date:** *10-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01 **Work Order No:** 10090444

**Client ID:** 687401-28B A. LOCKHART **Date Sampled:** 9/9/2010

**Lab ID:** 005A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | <0.033 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-28C A. LOCKHART **Date Sampled:** 9/9/2010

**Lab ID:** 006A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 5.3 | 0.18 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-28D A. LOCKHART **Date Sampled:** 9/9/2010

**Lab ID:** 007A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** 30

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | 1.4 | 0.048 | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | <0.033 | 1 | NIOSH 7300 | 09/10/2010 DH |

**Client ID:** 687401-29 BLANK **Date Sampled:** 9/9/2010

**Lab ID:** 008A **DateReceived:** 9/10/2010

**Matrix:** MCE Filter, .8um **Air Vol.(L):** NA

| Analyte | Concentration (µg) | Concentration (mg/m³) | Reporting Limit (µg) | Test Method | Date Analyzed / Analyst |
|---|---|---|---|---|---|
| Iron | <1 | -- | 1 | NIOSH 7300 | 09/10/2010 DH |
| Manganese | <1 | -- | 1 | NIOSH 7300 | 09/10/2010 DH |

# ANALYTICAL RESULTS

**Date:** *10-Sep-10*

**Client:** TTL ASSOCIATES

**Project:** 6874.01

**Work Order No:** 10090444

General Notes:
<: Less than the indicated reporting limit (RL).
--: Information not available or not applicable.

# REQUEST FOR LABORATORY ANALYTICAL SERVICES

**For Bureau Veritas Use Only**
Bureau Veritas Lab Project No.
10090444

## Bureau Veritas North America, Inc.

**Detroit Lab**
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(248) 344-1770
FAX (248) 344-2655

**Atlanta Lab**
3380 Chastain Meadows Pky., Suite 300
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 499-7511

**Chicago Lab**
95 Oakwood Road
Lake Zurich, IL 60047
(888) 576-7522
(847) 726-3320
FAX (847) 726-3323

**RUSH ANALYSIS**
CONTACT LAB IN ADVANCE
Need Results by: 9 / 10 / 10 PM
Charges Authorized? ☑ Yes ☐ No
(If yes, Initial here) HP
☐ Email Results VERBAL 734 634-0604 ☐ Fax

**REPORT RESULTS TO**
Name: HENRY PHILLIPS
Company: TTL ASSOCIATES
Mailing Address: 44265 PLYMOUTH OAKS BLVD
City, State, Zip: PLYMOUTH, MI 48170
Telephone No.: 734 634-0604 FAX No.:
Client Job No.: 6874.01
Dept.:

**BILLING/INVOICE INFORMATION**
☐ PO # ☐ Call for Credit Card Information ☐ Direct Bill
Name:
Company: SAME
Address:
City, State, Zip:

**Special instructions and/or specific regulatory requirements:**
(method, limit of detection, etc.)
VERBAL RESULTS TO
734 634-0604

* Explanation of Preservative

**Soils:** Which state are these from? ____

**Waters:** ☐ Drinking Water ☐ Groundwater ☐ Wastewater

**ANALYSIS REQUESTED**
(Enter an 'X' in the box below to indicate request. Enter a 'P' if Preservative added.*)

| CLIENT SAMPLE IDENTIFICATION | DATE SAMPLED | TIME SAMPLED | MATRIX/ MEDIA | AIR VOLUME (specify units) | Number of Containers | MN | Pb | FOR LAB USE ONLY |
|---|---|---|---|---|---|---|---|---|
| 687401-25 C. EWEN | 9/9/10 | | MCE | 882 L | | X | X | |
| 687401-26 B. FLICK | | | | 861 L | | | | |
| 687401-27 G. GRIMMER | | | | 836 L | | | | |
| 687401-28A A. LOCKHART | | | | 739 L | | | | |
| " -28B " | | | | 30 L | | | | |
| " -28C " | | | | 30 L | | | | |
| " -28D " | | | | 30 L | | | | |
| 687401-29 BLANK | | | | — | | | | |

**CHAIN OF CUSTODY**

Collected by: HENRY PHILLIPS (print) — Collector's Signature:
Relinquished by: — Date/Time 9/9/10 — Received by: — Date/Time
Relinquished by: — Date/Time — Received by: — Date/Time
Method of Shipment: — Received at Lab by: M Shapiro — Date/Time 9/10/10 725 am
Authorized by: — Date 9/9/10 — Sample Condition Upon Receipt: ☑ Acceptable ☐ Other (explain)

(Client Signature **MUST** Accompany Request)